

Translation

PATENT COOPERATION TREATY

PCT/JP2003/015031



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

02 JUN 2005

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference NE-70143 WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP2003/015031	International filing date (day/month/year) 25 November 2003 (25.11.2003)	Priority date (day/month/year) 02 December 2002 (02.12.2002)
International Patent Classification (IPC) or national classification and IPC G01N 1/10, 27/26, 27/62, 33/48, 35/08, 37/00, B01D 57/00, 57/02, B81C 1/00		
Applicant NEC CORPORATION		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 25 November 2003 (25.11.2003)	Date of completion of this report 05 August 2004 (05.08.2004)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

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I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☐ the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the claims:
 pages _____, as originally filed
 pages _____, as amended (together with any statement under Article 19
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the drawings:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
- ☒ not complied with for the following reasons:

The subject matters of claims 1-22 and 24-27 have a technical feature wherein an obstacle body is formed on the surface of a channel to control the flow of micro-particles; on the other hand, the subject matter of claim 23 does not have the said technical feature.

We could, however, conduct the search on claim 23 together with that on claims 1-22 and 24-27, so we did not ask the applicant to reduce the claims or to pay an additional search fee.

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
- ☐ the parts relating to claims Nos. _____

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-27	YES
	Claims		NO
Inventive step (IS)	Claims	11-14	YES
	Claims	1-10, 15-27	NO
Industrial applicability (IA)	Claims	1-27	YES
	Claims		NO

2. Citations and explanations

Document 1: WO, 2002-023180, A (Hitachi, Ltd.), 21 March, 2002 (21.03.02)

Document 2: Manuscripts Prepared for the 63rd Academic Lecture Meeting of The Japan Society of Applied Physics, (Iida, Kawaura, Iguchi, Sano, Baba), The Japan Society of Applied Physics, 24 September, 2002 (24.09.02), Separate Vol. 3, page 1147 (25a-R-9)

Document 3: The Sixth International Conference on Miniaturized Chemical and Biochemical Analysis Systems (Micro Total Analysis Systems 2002), (K. Iida, H. Kawaura, N. Iguchi, T. Sano, M. Baba), 3 November, 2002 (03.11.02), Vol. 2, pages 627-629

Document 4: JP, 2002-195982, A (Olympus Optical Co., Ltd.), 10 July, 2002 (10.07.02)

Document 5: Manuscripts Prepared for the 63rd Academic Lecture Meeting of The Japan Society of Applied Physics, (Sano, Baba, Iguchi, Iida, Kawaura, Sakamoto), The Japan Society of Applied Physics, 24 September, 2002 (24.09.02), Separate Vol. 3, page 1146 (25a-R-8)

Claims 1-10

Document 1 (refer particularly to Example 4, Figs. 9-4) describes a technology whereby a plurality of small trenches (213) to separate blood cells from blood plasma are disposed at an angle to the flow direction and the trenches act as a filter to let blood cells into a blood-cell channel and the other components into a serum channel.

Documents 2 and 3 describe a rapid separation technology by means of a plane ultrafiltration chip having a plurality of obstacle bodies.

In view of the foregoing, a person skilled in the art could have easily conceived of the subject matters of claims 1-10 based on the invention described in document 1, taking into consideration the inventions described in documents 2 and 3.

Claims 15

Document 4 (refer particularly to Fig. 1) describes a technology whereby the width of the entrance (104) of a separation area is narrower than the width of the said separation area (109) to give moving speeds in both the flow direction of particles and the direction perpendicular to the said flow direction in order to separate micro-particles.

In view of the foregoing, a person skilled in the art could have easily conceived of the subject matter of claim 15 based on the inventions described in documents 1-3, taking into consideration the invention described in document 4.

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Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of : V

Claims 16-27

Each of the subject matters of claims 16-27 is well known to a person skilled in the art or is a matter of design variation that such a person could have made as required. Accordingly, a person skilled in the art could have easily conceived of the subject matters of claims 16-27 based on the inventions described in documents 1-4.

Claims 11-14

Document 5 describes a DNA separation technology using holes as a plurality of obstacle bodies.

A technology, however, of guiding a portion of micro-particles into a predetermined direction by means of a flow control part where trenches are formed is not shown in any of the documents including document 5 cited in the ISR, and so a person skilled in the art could not have easily conceived of the subject matters of claims 11-14.